

PRINTERHANDBUCH

OKI Microline 390/391

Modell:

Art.-Nr.:

Art.-Nr.:

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*****
*
* ML 390/391          IBM-/EPSON *
*
* ML 390      : 0139002          *
* ML 391      : 0139102          *
*
**-----**
*
* ML 390/391          IBM        *
* (Proprinter 4207/8)          *
* (X24/XL24, AGM)             *
*-----*
*
* ML 390/391          EPSON      *
*
*****
```

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(300 bis 28800 bps,8,N,1)

T-ONLINE/DATEX-J/Btx: *222333#

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[illegible]

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*****
*
Printer:      *      ML 390/391  I/E      *
*
*      REMOTE EMULATION CONTROL      *
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*****
*
Emulation:   *      IBM 4207/8      *      IBM AGM      *      Epson LQ      *
*
ASCII:       *  ESC  {  STX  *  ESC  {  ETX  *  ESC  {  B      *
Hexadec.:    *  1B  7B  02  *  1B  7B  03  *  1B  7B  42  *
Decimal:     *  27  123  02  *  27  123  03  *  27  123  66  *
*
*****
*
Emulation equals Menu - *  ESC  }  NUL  *
Setting                 *  1B  7D  00  *
                        *  27  125  00  *
                        *
*****

```

EMULATION SELECT COMMAND:

The Command is defined as follows: ASCII : ESC { 'n'

HEX				

'n'	=	00	IBM General	(Proprinter 4207/8)
'n'	=	01	---	Current Emulation /no change
*) 'n'	=	02	IBM PPR	Proprinter 4207/08
*) 'n'	=	03	IBM	Alternate Graphic Mode (AGM)
'n'	=	40	EPSON General	(Epson LQ)
'n'	=	41	---	Current Emulation /no change
*) 'n'	=	42	EPSON LQ	Epson LQ

*) Note: Normaly use only marked commands!

EMULATION RESET COMMAND:

The Command is defined as follows: ASCII : ESC } NUL
 HEX: 1B 7D 00
 DEC: 27 125 00

This command resets the printer to the Emulation selected in the MENU.
 The printer is set to the same status as listed above by sending an Emulation change command.

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*****
*
*   ML 390/391   IBM Proprinter Emulation *
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*
*****
```

FUNCTION	COMMENT	ASCII	HEXADECIMAL

ALTERNATE GRAPHICS MODE =====			
VAR. LINE SPACING n/72"	WITHOUT ESC.2 !	ESC A n	1B 41 n
CHARACTER SET =====			
IBM CHARACTER SET I		ESC 7	1B 37
IBM CHARACTER SET II		ESC 6	1B 36
NATIONAL CHARACTER SET		ESC ! n	1B 21 n
PRINT FROM ALL CHAR. SET	ONE CHARACTER ONLY	ESC ^	1B 5E
PRINT FROM ALL CHAR. SET	CONTINUOUSLY	ESC \ n1 n2	1B 5C n1 n2
COMPOSITE COMMANDS =====			
PRINT MODE SELECTION		ESC I n	1B 49 n
CUT SHEET FEEDER =====			
BIN 1 SELECT		ESC EM 1	1B 19 31
BIN 2 SELECT		ESC EM 2	1B 19 32
CSF EJECT		ESC EM R	1B 19 52
CSF INSERT		ESC EM I	1B 19 49
DOWNLINE LOADABLE CHR.GEN =====			
COPY STD SET TO DLL CG		ESC \$	1B 24
LOAD PPR DLL CG		ESC = n1 n2 # a1 ...	1B 3D n1 n2 23 n1.
EXECUTION =====			
BACKSPACE		BS	08
CARRIAGE RETURN		CR	0D
CLEAR BUFFER		CAN	18
DESELECT PRINTER	SELECT BY SEL-KEY	ESC j	1B 6A
FORM FEED		FF	0C
LINE FEED		LF	0A
LINE FEED, REVERSE		ESC]	1B 5D
PRINT SUPPRESS OFF		DC1	11
PRINT SUPPRESS ON (ML390)	NO PRINT UNTIL "DC1"	ESC Q CAN	1B 51 18
PRINT SUPPRESS ON (ML391)	NO PRINT UNTIL "DC1"	ESC Q ETB	1B 51 17
VAR. LINE FEED n/216"	ONE LINE ONLY	ESC J n	1B 4A n
VAR. LINE FEED n/360"		ESC % 4 n	1B 25 34 n
FORMATTING =====			
CANCEL VTABS,SET HTABS 8.		ESC R	1B 52
FORM LENGTH BY INCHES	ALSO SETS TOF	ESC C NUL n	1B 43 00 n
FORM LENGTH BY LINES	ALSO SETS TOF	ESC C n	1B 43 n
HORIZONTAL TABULATOR		HT	09
HTABS CLEAR		ESC D NUL	1B 44 00
HTABS SET BY CHARACTERS		ESC D n1-nk NUL	1B 44 n1-nk 00

INDENTING RELATIVE	IN n/120"	ESC d n1 n2	1B 64 n1 n2
MARGIN SET	BY CHARACTER COLUMNS	ESC X n1 n2	1B 58 n1 n2
SKIP OVER PERFORATION	BY LINES	ESC N n	1B 4E n
SKIP OVER PERFORATION OFF		ESC O	1B 4F
TOF SET		ESC 4	1B 34
VERTICAL TABULATOR CLEAR		ESC B NUL	1B 42 00
VERTICAL TABULATOR SET		ESC B n1...n64 NUL	1B 42 n1...n64 00
VERTICAL TABULATOR SKIP	SAME AS LF IF NO TAB VT		0B

GRAPHICS, BIT IMAGE

=====

DENSITY DOUBLE	120 * 72 DPI	ESC Y n1 n2	1B 59 n1 n2
DENSITY DOUBLE HALF SPEED	120 * 72 DPI	ESC L n1 n2	1B 4C n1 n2
DENSITY QUADRUPLE	240 * 72 DPI	ESC Z n1 n2	1B 5A n1 n2
DENSITY SINGLE	60 * 72 DPI	ESC K n1 n2	1B 4B n1 n2

FUNCTION	COMMENT	ASCII	HEXADECIMAL

LINE SPACING			
=====			
6 LPI	WITHOUT PREV. ESC An	ESC 2	1B 32
8 LPI		ESC 0	1B 30
ACTIVATE ESC A n SPACING	NOT IN AGM,=>6 LPI	ESC 2	1B 32
LINE SPACING 7/72"	FOR 7 BIT GRAPHICS	ESC 1	1B 31
SET BASE FOR ESC J, ESC 3		ESC [\ EOT NUL NUL.	1B 5B 5C 04 00 00.
VAR. LINE SPACING n/216"		ESC 3 n	1B 33 n
VAR. LINE SPACING n/360"		ESC % 8 n	1B 25 38 n
VAR. LINE SPACING n/72"	ESC 2 MUST FOLLOW !!	ESC A n	1B 41 n
MISCELLANEOUS			
=====			
AUTO LF OFF		ESC 5 0	1B 35 30
AUTO LF ON		ESC 5 1	1B 35 31
PAPER OUT SENSOR OFF		ESC 8	1B 38
PAPER OUT SENSOR ON		ESC 9	1B 39
PRINT BIDIRECTIONAL		ESC U 0	1B 55 30
PRINT UNIDIRECTIONAL		ESC U 1	1B 55 31
PRINT MODE			
=====			
10 CPI	PICA	DC2	12
12 CPI	ELITE	ESC :	1B 3A
15 CPI		ESC g	1B 67
17 CPI	FINE	SI	0F
20 CPI		ESC SI	1B 0F
DOUBLE HEIGHT CHARACTERS	ALSO DOUBLE WIDTH	ESC [@ n1 n2 m1...	1B 5B 40 n1n2 m1..
EMPHASIZED OFF		ESC F	1B 46
EMPHASIZED ON		ESC E	1B 45
ENHANCED OFF	DOUBLE STRIKE	ESC H	1B 48
ENHANCED ON	DOUBLE STRIKE	ESC G	1B 47
ITALICS (SLANT) OFF		ESC % H	1B 25 48
ITALICS (SLANT) ON		ESC % G	1B 25 47
OVERSCORE OFF		ESC _ 0	1B 5F 30
OVERSCORE ON		ESC _ 1	1B 5F 31
PROPORTIONAL SPACING OFF		ESC P 0	1B 50 30
PROPORTIONAL SPACING ON		ESC P 1	1B 50 31
SELECT TYPESTYLE CART/RES		ESC k n	1B 68 n
SUBSCRIPT OFF	ALSO SUPERScript OFF	ESC T	1B 54
SUBSCRIPT ON	SOH OR ANY ODD NO.	ESC S 1	1B 53 31
SUPERScript OFF	ALSO SUBSCRIPT OFF	ESC T	1B 54
SUPERScript ON	NUL OR ANY EVEN NO.	ESC S 0	1B 53 30
UNDERLINE OFF	UNDERSCORE	ESC - 0	1B 2D 30
UNDERLINE ON	UNDERSCORE	ESC - 1	1B 2D 31
WIDTH DOUBLE	FOR ONE LINE ONLY	SO	0E
WIDTH DOUBLE OFF		ESC W 0	1B 57 30
WIDTH DOUBLE OFF	BEFORE END OF LINE	DC4	14
WIDTH DOUBLE ON		ESC W 1	1B 57 31


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*****
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*   ML 390/391                      IBM X24/AGM   *
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FUNCTION	COMMENT	ASCII	HEXADECIMAL

ALTERNATE GRAPHICS MODE =====			
VAR. LINE SPACING n/60"	WITHOUT ESC.2 !	ESC A n	1B 41 n
CHARACTER SET =====			
IBM CHARACTER SET I		ESC 7	1B 37
IBM CHARACTER SET II		ESC 6	1B 36
NATIONAL CHARACTER SET		ESC ! n	1B 21 n
PRINT FROM ALL CHAR. SET	ONE CHARACTER ONLY	ESC ^ n	1B 5E n
PRINT FROM ALL CHAR. SET	CONTINUOUSLY	ESC \ n1 n2	1B 5C n1 n2
COMPOSITE COMMANDS =====			
PRINT MODE SELECTION		ESC I n	1B 49 n
CUT SHEET FEEDER =====			
BIN 1 SELECT		ESC EM 1	1B 19 31
BIN 2 SELECT		ESC EM 2	1B 19 32
CSF EJECT		ESC EM R	1B 19 52
CSF INSERT		ESC EM I	1B 19 49
DOWNLINE LOADABLE CHR.GEN =====			
COPY STD SET TO DLL CG		ESC \$	1B 24
LOAD PPR DLL CG		ESC = n1 n2 # a1 ...	1B 3D n1n2 23 n1..
EXECUTION =====			
BACKSPACE		BS	08
CARRIAGE RETURN		CR	0D
CLEAR BUFFER		CAN	18
DESELECT PRINTER	SELECT BY SEL-KEY	ESC j	1B 6A
FORM FEED		FF	0C
LINE FEED		LF	0A
LINE FEED, REVERSE		ESC]	1B 5D
PRINT SUPPRESS OFF		DC1	11
PRINT SUPPRESS ON (ML390)	NO PRINT UNTIL "DC1"	ESC Q CAN	1B 51 18
PRINT SUPPRESS ON (ML391)	NO PRINT UNTIL "DC1"	ESC Q ETB	1B 51 17
VAR. LINE FEED n/180"	ONE LINE ONLY	ESC J n	1B 4A n
VAR. LINE FEED n/360"		ESC % 4 n	1B 25 34 n
FORMATTING =====			
CANCEL VTABS,SET HTABS 8.		ESC R	1B 52
FORM LENGTH BY INCHES	ALSO SETS TOF	ESC C NUL n	1B 43 00 n
FORM LENGTH BY LINES	ALSO SETS TOF	ESC C n	1B 43 n
HORIZONTAL TABULATOR		HT	09
HTABS CLEAR		ESC D NUL	1B 44 00
HTABS SET BY CHARACTERS		ESC D n1-nk NUL	1B 44 n1-nk 00
INDENTING RELATIVE	IN n/120"	ESC d n1 n2	1B 64 n1 n2

MARGIN SET	BY CHARACTER COLUMNS	ESC X n1 n2	1B 58 n1 n2
SKIP OVER PERFORATION	BY LINES	ESC N n	1B 4E n
SKIP OVER PERFORATION OFF		ESC O	1B 4F
TOF SET		ESC 4	1B 34
VERTICAL TABULATOR CLEAR		ESC B NUL	1B 42 00
VERTICAL TABULATOR SET		ESC B n1...n64 NUL	1B 42 n1...n64 00
VERTICAL TABULATOR SKIP	SAME AS LF IF NO TAB	VT	0B

GRAPHICS, BIT IMAGE
=====

DENSITY DOUBLE	120 * 72 DPI	ESC Y n1 n2	1B 59 n1 n2
DENSITY DOUBLE HALF SPEED	120 * 72 DPI	ESC L n1 n2	1B 4C n1 n2
DENSITY QUADRUPLE	240 * 72 DPI	ESC Z n1 n2	1B 5A n1 n2
DENSITY SINGLE	60 * 72 DPI	ESC K n1 n2	1B 4B n1 n2
SELECT 8 BIT GRAPHICS	AGM ONLY !!!	ESC * m n1 n2 v1-vk	1B 2A m n1n2 v1-vk

FUNCTION	COMMENT	ASCII	HEXADECIMAL

LINE SPACING			
=====			
6 LPI	WITHOUT PREV. ESC An	ESC 2	1B 32
8 LPI		ESC 0	1B 30
LINE SPACING 7/72"	FOR 7 BIT GRAPHICS	ESC 1	1B 31
SET BASE FOR ESC J, ESC 3		ESC [\ EOT NUL NUL.	1B 5B 5C 040000..
VAR. LINE SPACING n/216"		ESC 3 n	1B 33 n
VAR. LINE SPACING n/360"		ESC % 8 n	1B 25 38 n
VAR. LINE SPACING n/72"	ESC.2 MUST FOLLOW !!	ESC A n	1B 41 n
MISCELLANEOUS			
=====			
AUTO LF OFF		ESC 5 0	1B 35 30
AUTO LF ON		ESC 5 1	1B 35 31
PAPER OUT SENSOR OFF		ESC 8	1B 38
PAPER OUT SENSOR ON		ESC 9	1B 39
PRINT BIDIRECTIONAL		ESC U 0	1B 55 30
PRINT UNIDIRECTIONAL		ESC U 1	1B 55 31
PRINT MODE			
=====			
10 CPI	PICA	DC2	12
12 CPI	ELITE	ESC :	1B 3A
15 CPI		ESC g	1B 67
17 CPI	FINE	SI	0F
20 CPI		ESC SI	1B 0F
DOUBLE HEIGHT CHARACTERS	ALSO DOUBLE WIDTH	ESC [@ n1 n2 m1...	1B 5B 40 n1n2 m1..
EMPHASIZED OFF		ESC F	1B 46
EMPHASIZED ON		ESC E	1B 45
ENHANCED OFF	DOUBLE STRIKE	ESC H	1B 48
ENHANCED ON	DOUBLE STRIKE	ESC G	1B 47
ITALICS (SLANT) OFF		ESC % H	1B 25 48
ITALICS (SLANT) ON		ESC % G	1B 25 47
OVERSCORE OFF		ESC _ 0	1B 5F 30
OVERSCORE ON		ESC _ 1	1B 5F 31
PROPORTIONAL SPACING OFF		ESC P 0	1B 50 30
PROPORTIONAL SPACING ON		ESC P 1	1B 50 31
SELECT TYPESTYLE CART/RES		ESC k n	1B 68 n
SUBSCRIPT OFF	ALSO SUPERScript OFF	ESC T	1B 54
SUBSCRIPT ON	SOH OR ANY ODD NO.	ESC S 1	1B 53 31
SUPERScript OFF	ALSO SUBSCRIPT OFF	ESC T	1B 54
SUPERScript ON	NUL OR ANY EVEN NO.	ESC S 0	1B 53 30
UNDERLINE OFF	UNDERSCORE	ESC - 0	1B 2D 30
UNDERLINE ON	UNDERSCORE	ESC - 1	1B 2D 31
WIDTH DOUBLE	FOR ONE LINE ONLY	SO	0E
WIDTH DOUBLE OFF		ESC W 0	1B 57 30
WIDTH DOUBLE OFF	BEFORE END OF LINE	DC4	14
WIDTH DOUBLE ON		ESC W 1	1B 57 31

I. Proportional characters: Width Table Firmware:

fuer NORMAL und KURSIV identisch:

Proportional: ESC P1 ON, ESC P0 OFF
 Kursiv: ESC %G ON, ESC %H OFF

CHARACTER CODE						SETWIDTH
HEX		DEC		OCT		#/120 "

00	-	000	-	000	=	10
01	-	001	-	001	=	10
02	-	002	-	002	=	10
03	-	003	-	003	=	10
04	-	004	-	004	=	10
05	-	005	-	005	=	10
06	-	006	-	006	=	10
07	-	007	-	007	=	10
08	-	008	-	010	=	10
09	-	009	-	011	=	10
0A	-	010	-	012	=	10
0B	-	011	-	013	=	10
0C	-	012	-	014	=	10
0D	-	013	-	015	=	10
0E	-	014	-	016	=	10
0F	-	015	-	017	=	10
10	-	016	-	020	=	10
11	-	017	-	021	=	10
12	-	018	-	022	=	10
13	-	019	-	023	=	10
14	-	020	-	024	=	10
15	-	021	-	025	=	10
16	-	022	-	026	=	10
17	-	023	-	027	=	10
18	-	024	-	030	=	10
19	-	025	-	031	=	10
1A	-	026	-	032	=	10
1B	-	027	-	033	=	10
1C	-	028	-	034	=	10
1D	-	029	-	035	=	10
1E	-	030	-	036	=	10
1F	-	031	-	037	=	10
20	-	032	-	040	=	10
21	-	033	-	041	=	10
22	-	034	-	042	=	10
23	-	035	-	043	=	10
24	-	036	-	044	=	10
25	-	037	-	045	=	10
26	-	038	-	046	=	12
27	-	039	-	047	=	06
28	-	040	-	050	=	10

CHARACTER CODE				SETWIDTH	
HEX		DEC	OCT		#/120"

29	-	041	-	051	= 10
2A	-	042	-	052	= 10
2B	-	043	-	053	= 10
2C	-	044	-	054	= 10
2D	-	045	-	055	= 10
2E	-	046	-	056	= 10
2F	-	047	-	057	= 10
30	-	048	-	060	= 10
31	-	049	-	061	= 10
32	-	050	-	062	= 10
33	-	051	-	063	= 10
34	-	052	-	064	= 10
35	-	053	-	065	= 10
36	-	054	-	066	= 10
37	-	055	-	067	= 10
38	-	056	-	070	= 10
39	-	057	-	071	= 10
3A	-	058	-	072	= 10
3B	-	059	-	073	= 10
3C	-	060	-	074	= 10
3D	-	061	-	075	= 10
3E	-	062	-	076	= 10
3F	-	063	-	077	= 10
40	-	064	-	100	= 10
41	-	065	-	101	= 14
42	-	066	-	102	= 14
43	-	067	-	103	= 14
44	-	068	-	104	= 14
45	-	069	-	105	= 12
46	-	070	-	106	= 12
47	-	071	-	107	= 14
48	-	072	-	110	= 14
49	-	073	-	111	= 08
4A	-	074	-	112	= 10
4B	-	075	-	113	= 14
4C	-	076	-	114	= 12
4D	-	077	-	115	= 14
4E	-	078	-	116	= 14
4F	-	079	-	117	= 14
50	-	080	-	120	= 12
51	-	081	-	121	= 14
52	-	082	-	122	= 14
53	-	083	-	123	= 12
54	-	084	-	124	= 14
55	-	085	-	125	= 14
56	-	086	-	126	= 14
57	-	087	-	127	= 14
58	-	088	-	130	= 14
59	-	089	-	131	= 14
5A	-	090	-	132	= 12

CHARACTER CODE				SETWIDTH	
HEX	DEC	OCT		#/120"	

5B	-	091	-	133	= 10
5C	-	092	-	134	= 10
5D	-	093	-	135	= 10
5E	-	094	-	136	= 10
5F	-	095	-	137	= 10
60	-	096	-	140	= 10
61	-	097	-	141	= 10
62	-	098	-	142	= 12
63	-	099	-	143	= 10
64	-	100	-	144	= 12
65	-	101	-	145	= 10
66	-	102	-	146	= 08
67	-	103	-	147	= 12
68	-	104	-	150	= 12
69	-	105	-	151	= 06
6A	-	106	-	152	= 06
6B	-	107	-	153	= 12
6C	-	108	-	154	= 06
6D	-	109	-	155	= 14
6E	-	110	-	156	= 12
6F	-	111	-	157	= 10
70	-	112	-	160	= 12
71	-	113	-	161	= 12
72	-	114	-	162	= 10
73	-	115	-	163	= 10
74	-	116	-	164	= 08
75	-	117	-	165	= 12
76	-	118	-	166	= 12
77	-	119	-	167	= 14
78	-	120	-	170	= 12
79	-	121	-	171	= 12
7A	-	122	-	172	= 10
7B	-	123	-	173	= 10
7C	-	124	-	174	= 10
7D	-	125	-	175	= 10
7E	-	126	-	176	= 10
7F	-	127	-	177	= 10
80	-	128	-	200	= 14
81	-	129	-	201	= 12
82	-	130	-	202	= 10
83	-	131	-	203	= 10
84	-	132	-	204	= 10
85	-	133	-	205	= 10
86	-	134	-	206	= 10
87	-	135	-	207	= 10
88	-	136	-	210	= 10
89	-	137	-	211	= 10
8A	-	138	-	212	= 10
8B	-	139	-	213	= 06
8C	-	140	-	214	= 06

CHARACTER CODE				SETWIDTH		
HEX		DEC		OCT		#/120"
8D	-	141	-	215	=	06
8E	-	142	-	216	=	14
8F	-	143	-	217	=	14
90	-	144	-	220	=	12
91	-	145	-	221	=	14
92	-	146	-	222	=	14
93	-	147	-	223	=	10
94	-	148	-	224	=	10
95	-	149	-	225	=	10
96	-	150	-	226	=	12
97	-	151	-	227	=	12
98	-	152	-	230	=	12
99	-	153	-	231	=	14
9A	-	154	-	232	=	14
9B	-	155	-	233	=	10
9C	-	156	-	234	=	10
9D	-	157	-	235	=	10
9E	-	158	-	236	=	14
9F	-	159	-	237	=	10
A0	-	160	-	240	=	10
A1	-	161	-	241	=	06
A2	-	162	-	242	=	10
A3	-	163	-	243	=	12
A4	-	164	-	244	=	12
A5	-	165	-	245	=	14
A6	-	166	-	246	=	10
A7	-	167	-	247	=	10
A8	-	168	-	250	=	10
A9	-	169	-	251	=	10
AA	-	170	-	252	=	10
AB	-	171	-	253	=	10
AC	-	172	-	254	=	10
AD	-	173	-	255	=	10
AE	-	174	-	256	=	14
AF	-	175	-	257	=	14
B0	-	176	-	260	=	10
B1	-	177	-	261	=	10
B2	-	178	-	262	=	10
B3	-	179	-	263	=	10
B4	-	180	-	264	=	10
B5	-	181	-	265	=	10
B6	-	182	-	266	=	10
B7	-	183	-	267	=	10
B8	-	184	-	270	=	10
B9	-	185	-	271	=	10
BA	-	186	-	272	=	10
BB	-	187	-	273	=	10
BC	-	188	-	274	=	10
BD	-	189	-	275	=	10
BE	-	190	-	276	=	10

CHARACTER CODE				SETWIDTH	
HEX	DEC	OCT		#/120"	

BF	- 191	- 277	=	10	
C0	- 192	- 300	=	10	
C1	- 193	- 301	=	10	
C2	- 194	- 302	=	10	
C3	- 195	- 303	=	10	
C4	- 196	- 304	=	10	
C5	- 197	- 305	=	10	
C6	- 198	- 306	=	10	
C7	- 199	- 307	=	10	
C8	- 200	- 310	=	10	
C9	- 201	- 311	=	10	
CA	- 202	- 312	=	10	
CB	- 203	- 313	=	10	
CC	- 204	- 314	=	10	
CD	- 205	- 315	=	10	
CE	- 206	- 316	=	10	
CF	- 207	- 317	=	10	
D0	- 208	- 320	=	10	
D1	- 209	- 321	=	10	
D2	- 210	- 322	=	10	
D3	- 211	- 323	=	10	
D4	- 212	- 324	=	10	
D5	- 213	- 325	=	10	
D6	- 214	- 326	=	10	
D7	- 215	- 327	=	10	
D8	- 216	- 330	=	10	
D9	- 217	- 331	=	10	
DA	- 218	- 332	=	10	
DB	- 219	- 333	=	10	
DC	- 220	- 334	=	10	
DD	- 221	- 335	=	10	
DE	- 222	- 336	=	10	
DF	- 223	- 337	=	10	
E0	- 224	- 340	=	10	
E1	- 225	- 341	=	12	
E2	- 226	- 342	=	12	
E3	- 227	- 343	=	12	
E4	- 228	- 344	=	14	
E5	- 229	- 345	=	12	
E6	- 230	- 346	=	12	
E7	- 231	- 347	=	10	
E8	- 232	- 350	=	14	
E9	- 233	- 351	=	14	
EA	- 234	- 352	=	14	
EB	- 235	- 353	=	10	
EC	- 236	- 354	=	10	
ED	- 237	- 355	=	14	
EE	- 238	- 356	=	10	
EF	- 239	- 357	=	10	

CHARACTER CODE				SETWIDTH	
HEX	DEC	OCT		#/120"	

F0	- 240	- 360	=	10	
F1	- 241	- 361	=	10	
F2	- 242	- 362	=	10	
F3	- 243	- 363	=	10	
F4	- 244	- 364	=	10	
F5	- 245	- 365	=	10	
F6	- 246	- 366	=	10	
F7	- 247	- 367	=	10	
F8	- 248	- 370	=	10	
F9	- 249	- 371	=	10	
FA	- 250	- 372	=	10	
FB	- 251	- 373	=	10	
FC	- 252	- 374	=	10	
FD	- 253	- 375	=	10	
FE	- 254	- 376	=	10	
FF	- 255	- 377	=	10	

ISO 390 Proprinter (Werte fuer Normal und Italics identisch)

Italics = Kursiv

Position	1	2	3	4	6	7	8	9	10	11	12	13	14	15

Dec. Code	35	36	38	64	91	92	93	94	95	96	123	124	125	126

ASCII ESC! n	--	--	--	--	--	--	--	--	--	--	--	--	--	--

ASCII (0)	64	10	10	12	10	10	10	10	10	10	10	10	10	10
ASCII (O)	65	10	10	12	10	10	10	10	10	10	10	10	10	10
BRITISH	66	10	10	12	10	10	10	10	10	10	10	10	10	10
GERMAN	67	10	10	12	10	14	14	14	10	10	10	10	12	12
FRENCH	68	10	10	12	10	10	10	10	10	10	10	12	10	10
SWEDISH 1	69	10	10	12	12	14	14	14	14	10	10	10	10	12
DANISH	70	10	10	12	10	14	12	14	14	10	10	14	10	12
NORWEGIAN	71	10	10	12	10	14	12	14	10	10	10	14	10	10
DUTCH	72	10	10	12	10	10	14	10	10	10	10	12	10	10
ITALIAN	73	10	10	12	10	10	10	10	10	12	10	10	10	06
FR-KANADA	74	12	10	10	10	10	10	06	06	10	10	12	10	12
SPANISH	75	10	10	12	10	14	12	10	12	10	10	06	10	12
SWEDISH 2	76	10	10	12	12	14	14	14	14	10	10	10	10	12
SWEDISH 3	77	10	10	12	12	14	14	14	14	10	10	10	10	12
SWEDISH 4	78	10	10	12	12	14	14	14	10	10	10	10	10	12
Turkish	79	10	10	12	12	06	10	12	14	10	10	08	14	14
Swiss 1	80	10	10	12	10	10	10	10	10	10	10	10	12	10
Swiss 2	81	10	10	12	10	10	10	10	10	10	10	10	12	10

```
*****
*
*   ML 390/391           - EPSON Emulation *
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*****
```

FUNCTION	COMMENT	ASCII	HEXADECIMAL

CHARACTER SET			
=====			
CHARACTER SET ITALICS		ESC t NUL	1B 74 00
CHR. SET LINE GRAPHICS		ESC t SOH	1B 74 01
CODE EXPANSION OFF	128-159+255 CONTROLS	ESC 7	1B 37
CODE EXPANSION ON	128-159+255 PRINTABL	ESC 6	1B 36
NATIONAL CHARACTER SET		ESC R n	1B 52 n
COMPOSITE COMMANDS			
=====			
PRINT MODE SELECTION		ESC ! n	1B 21 n
CUT SHEET FEEDER			
=====			
BIN 1 SELECT		ESC EM 1	1B 19 31
BIN 2 SELECT		ESC EM 2	1B 19 32
EJECT SINGLE SHEET		ESC EM R	1B 19 52
INSERT SINGLE SHEET		ESC EM I	1B 19 49
DOWNLINE LOADABLE CHR.GEN			
=====			
COPY STD SET TO DLL CG		ESC : NUL NUL NUL	1B 3A 00 00 00
DLL CHR.SET DESELECT		ESC % 0	1B 25 30
DLL CHR.SET SELECT		ESC % 1	1B 25 31
LOAD DLL		ESC & m n1 n2 d0 d1.	1B 26 m n1n2 d0d1.
EXECUTION			
=====			
BACKSPACE		BS	08
CARRIAGE RETURN		CR	0D
CLEAR BUFFER		CAN	18
CLEAR BUFFER/MASTER RESET		ESC @	1B 40
DELETE LAST CHARACTER	IN BUFFER	DEL	7F
FORM FEED		FF	0C
LINE FEED		LF	0A
PRINT SUPPRESS OFF		DC1	11
PRINT SUPPRESS ON	NO PRINT UNTIL "DC1"	DC3	13
VAR. LINE FEED n/160"	N = 0 TO 255	ESC J n	1B 4A n
VAR. LINE FEED n/160" REV	n = 0 to 60	ESC j n	1B 6A n
VAR. LINE FEED n/360"	n = 0 TO 255	ESC l n	1B 5D n
FORMATTING			
=====			
DOT POSITION ABSOLUTE	IN 1/60" UNITS	ESC \$ n1 n2	1B 24 n1 n2
DOT POSITION RELATIVE	IN 1/120" UNITS	ESC \ n1 n2	1B 5C n1 n2
FORM LENGTH BY INCHES	n = 1 TO 22	ESC C NUL n	1B 43 00 n
FORM LENGTH BY LINES	n = 1 - 127	ESC C n	1B 43 n
HORIZONTAL TABULATOR SKIP		HT	09
HTABS CLEAR		ESC D NUL	1B 44 00
HTABS SET BY CHARACTERS		ESC D n1...n32 NUL	1B 44 n1...n32 00
MARGIN SET LEFT		ESC l n	1B 6C n
MARGIN SET RIGHT		ESC Q n	1B 51 n
SET REL. VERT./HORIZ.TABS n=0 HORIZ. n=1 VERT.		ESC e n m	1B 65 n m
SET REL.VERT/HOR.PRINTPOS n=0 HORIZ. n=1 VERT.		ESC f n m	1B 66 n m

SKIP OVER PERFORATION	n=1 TO 127 LINES	ESC N n	1B 4E n
SKIP OVER PERFORATION OFF		ESC O	1B 4F
VERTICAL TABULATOR CANCEL		ESC B NUL	1B 42 00
VERTICAL TABULATOR SET		ESC B n1...n16 NUL	1B 42 n1...n16 00
VERTICAL TABULATOR SKIP	SAME AS LF IF NO TAB	VT	0B
VFU CHANNEL SELECT	n = 0 to 7	ESC / n	1B 2F n
VFU LOAD	k = 1 to 16	ESC b n m1...mk NUL	1B 62 n m1...mk 00

GRAPHICS BIT IMAGE
=====

DENSITY DOUBLE	120 * 72 DPI	ESC Y	1B 59
DENSITY DOUBLE, HALF SPEED	120 * 72 DPI	ESC L	1B 4C
DENSITY QUADRUPLE	240 * 72 DPI	ESC Z	1B 5A
DENSITY SINGLE	60 * 72 DPI	ESC K	1B 48
REASSIGN GRAPHICS MODE	ESC * TO ESC K,L,Y,Z	ESC ? s n	1B 3F s n
SELECT 8 BIT GRAPHICS		ESC * m n1 n2 v1-vk	1B 2A m n1n2 v1-vk

FUNCTION	COMMENT	ASCII	HEXADECIMAL

LINE SPACING			
=====			
6 LPI		ESC 2	1B 32
8 LPI		ESC 0	1B 30
VAR. LINE SPACING n/180"	n = 0 TO 255	ESC 3 n	1B 33 n
VAR. LINE SPACING n/360"	n = 0 TO 255	ESC [n	1B 5B n
VAR. LINE SPACING n/60"	N = 0 TO 85	ESC A n	1B 41 n
MISCELLANEOUS			
=====			
HALF SPEED PRINTING OFF		ESC s 0	1B 73 30
HALF SPEED PRINTING ON		ESC s 1	1B 73 31
MSB SET 0		ESC =	1B 3D
MSB SET 1		ESC >	1B 3E
MSB SETTING CANCEL		ESC #	1B 23
PAPER OUT SENSOR OFF		ESC 8	1B 38
PAPER OUT SENSOR ON		ESC 9	1B 39
UNIDIRECTIONAL PRINT OFF		ESC U 0	1B 55 30
UNIDIRECTIONAL PRINT ON		ESC U 1	1B 55 31
UNIDIR. PRINT (HOME HEAD) FOR ONE LINE ONLY		ESC <	1B 3C
PRINT MODE			
=====			
10 CPI	PICA	ESC P	1B 50
12 CPI	ELITE	ESC M	1B 4D
15 CPI		ESC g	1B 67
CONDENSED MODE RESET	20=>12, 17=>10 CPI	DC2	12
CONDENSED MODE SET	10=>17, 12=>20 CPI	SI	0F
CONDENSED MODE SET	10=>17, 12=>20 CPI	ESC SI	1B 0F
DESIGNATES NLQ MODE	LQ WITH 24 PINS	ESC x SOH	1B 78 01
DESIGNATES UTILITY MODE		ESC x NUL	1B 78 00
DOUBLE WIDTH OFF	BEFORE END OF LINE	DC4	14
DOUBLE WIDTH ON	FOR ONE LINE ONLY	SO	0E
DOUBLE WIDTH ON	FOR ONE LINE ONLY	ESC SO	1B 0E
EMPHASIZED OFF		ESC F	1B 46
EMPHASIZED ON		ESC E	1B 45
ENHANCED OFF	DOUBLE STRIKE	ESC H	1B 48
ENHANCED ON	DOUBLE STRIKE	ESC G	1B 47
HEIGHT DOUBLE OFF		ESC w NUL	1B 77 00
HEIGHT DOUBLE OFF		ESC US NUL	1B 1F 00
HEIGHT DOUBLE ON		ESC w SOH	1B 77 01
HEIGHT DOUBLE ON		ESC US SOH	1B 1F 01
ITALICS OFF		ESC 5	1B 35
ITALICS ON		ESC 4	1B 34
NLQ AUTO JUSTIFICATION	LEFT,MID,RIGHT,FULL	ESC a n	1B 61 n
PROPORTIONAL SPACING OFF		ESC p 0	1B 70 30
PROPORTIONAL SPACING ON		ESC p 1	1B 70 31
SELECT TYPESTYLE CART/RES		ESC k n	1B 68 n
SPACE BETWEEN CHARACTERS	0<=N<=127 (FX:63)	ESC SP n	1B 20 n
SUBSCRIPT OFF	ALSO SUPERScript OFF	ESC T	1B 54
SUBSCRIPT ON		ESC S 1	1B 53 31
SUPERScript OFF	ALSO SUBSCRIPT OFF	ESC T	1B 54
SUPERScript ON		ESC S 0	1B 53 30
UNDERLINE OFF		ESC - 0	1B 2D 31
UNDERLINE ON		ESC - 1	1B 2D 31
WIDTH DOUBLE OFF		ESC W 0	1B 57 30
WIDTH DOUBLE ON		ESC W 1	1B 57 31

I. Proportional characters: Width Table Firmware:

Normal/Kursiv #/360 inch
 *) Compressed #/(360*2) inch

Proportional Spacing : (ESC p1 - ON, ESC p0 - OFF)
 Italics : (ESC 4 - ON, ESC 5 - OFF)

CHARACTER CODE				SETWIDTH
HEX	DEC	OCT		#/120"

00	- 000	- 000	=	--
01	- 001	- 001	=	--
02	- 002	- 002	=	--
03	- 003	- 003	=	--
04	- 004	- 004	=	--
05	- 005	- 005	=	--
06	- 006	- 006	=	--
07	- 007	- 007	=	--
08	- 008	- 010	=	--
09	- 009	- 011	=	--
0A	- 010	- 012	=	--
0B	- 011	- 013	=	--
0C	- 012	- 014	=	--
0D	- 013	- 015	=	--
0E	- 014	- 016	=	--
0F	- 015	- 017	=	--
10	- 016	- 020	=	--
11	- 017	- 021	=	--
12	- 018	- 022	=	--
13	- 019	- 023	=	--
14	- 020	- 024	=	--
15	- 021	- 025	=	30
16	- 022	- 026	=	--
17	- 023	- 027	=	--
18	- 024	- 030	=	--
19	- 025	- 031	=	--
1A	- 026	- 032	=	--
1B	- 027	- 033	=	--
1C	- 028	- 034	=	--
1D	- 029	- 035	=	--
1E	- 030	- 036	=	--
1F	- 031	- 037	=	--
20	- 032	- 040	=	30
21	- 033	- 041	=	18
22	- 034	- 042	=	30
23	- 035	- 043	=	30
24	- 036	- 044	=	30
25	- 037	- 045	=	36
26	- 038	- 046	=	36
27	- 039	- 047	=	18

CHARACTER CODE				SETWIDTH	
HEX		DEC	OCT		#/120"

28	-	040	-	050	= 24
29	-	041	-	051	= 24
2A	-	042	-	052	= 30
2B	-	043	-	053	= 30
2C	-	044	-	054	= 18
2D	-	045	-	055	= 30
2E	-	046	-	056	= 18
2F	-	047	-	057	= 30
30	-	048	-	060	= 30
31	-	049	-	061	= 30
32	-	050	-	062	= 30
33	-	051	-	063	= 30
34	-	052	-	064	= 30
35	-	053	-	065	= 30
36	-	054	-	066	= 30
37	-	055	-	067	= 30
38	-	056	-	070	= 30
39	-	057	-	071	= 30
3A	-	058	-	072	= 18
3B	-	059	-	073	= 18
3C	-	060	-	074	= 30
3D	-	061	-	075	= 30
3E	-	062	-	076	= 30
3F	-	063	-	077	= 30
40	-	064	-	100	= 36
41	-	065	-	101	= 36
42	-	066	-	102	= 36
43	-	067	-	103	= 36
44	-	068	-	104	= 36
45	-	069	-	105	= 36
46	-	070	-	106	= 36
47	-	071	-	107	= 36
48	-	072	-	110	= 36
49	-	073	-	111	= 24
4A	-	074	-	112	= 30
4B	-	075	-	113	= 36
4C	-	076	-	114	= 36
4D	-	077	-	115	= 42
4E	-	078	-	116	= 36
4F	-	079	-	117	= 36
50	-	080	-	120	= 36
51	-	081	-	121	= 36
52	-	082	-	122	= 36
53	-	083	-	123	= 36
54	-	084	-	124	= 36
55	-	085	-	125	= 42
56	-	086	-	126	= 36
57	-	087	-	127	= 42
58	-	088	-	130	= 36

CHARACTER CODE				SETWIDTH		
HEX		DEC		OCT		#/120 "

59	-	089	-	131	=	36
5A	-	090	-	132	=	30
5B	-	091	-	133	=	24
5C	-	092	-	134	=	30
5D	-	093	-	135	=	24
5E	-	094	-	136	=	30
5F	-	095	-	137	=	30
60	-	096	-	140	=	18
61	-	097	-	141	=	30
62	-	098	-	142	=	36
63	-	099	-	143	=	30
64	-	100	-	144	=	36
65	-	101	-	145	=	30
66	-	102	-	146	=	24
67	-	103	-	147	=	36
68	-	104	-	150	=	36
69	-	105	-	151	=	18
6A	-	106	-	152	=	24
6B	-	107	-	153	=	36
6C	-	108	-	154	=	18
6D	-	109	-	155	=	42
6E	-	110	-	156	=	36
6F	-	111	-	157	=	30
70	-	112	-	160	=	36
71	-	113	-	161	=	36
72	-	114	-	162	=	30
73	-	115	-	163	=	30
74	-	116	-	164	=	24
75	-	117	-	165	=	36
76	-	118	-	166	=	36
77	-	119	-	167	=	42
78	-	120	-	170	=	30
79	-	121	-	171	=	36
7A	-	122	-	172	=	30
7B	-	123	-	173	=	24
7C	-	124	-	174	=	18
7D	-	125	-	175	=	24
7E	-	126	-	176	=	30
7F	-	127	-	177	=	00
80	-	128	-	200	=	36
81	-	129	-	201	=	36
82	-	130	-	202	=	30
83	-	131	-	203	=	30
84	-	132	-	204	=	30
85	-	133	-	205	=	30

CHARACTER CODE				SETWIDTH		
HEX		DEC		OCT		#/120 "

86	-	134	-	206	=	30
87	-	135	-	207	=	30
88	-	136	-	210	=	30
89	-	137	-	211	=	30
8A	-	138	-	212	=	30
8B	-	139	-	213	=	18
8C	-	140	-	214	=	18
8D	-	141	-	215	=	18
8E	-	142	-	216	=	36
8F	-	143	-	217	=	36
90	-	144	-	220	=	36
91	-	145	-	221	=	42
92	-	146	-	222	=	42
93	-	147	-	223	=	30
94	-	148	-	224	=	30
95	-	149	-	225	=	30
96	-	150	-	226	=	36
97	-	151	-	227	=	36
98	-	152	-	230	=	36
99	-	153	-	231	=	36
9A	-	154	-	232	=	42
9B	-	155	-	233	=	30
9C	-	156	-	234	=	30
9D	-	157	-	235	=	36
9E	-	158	-	236	=	42
9F	-	159	-	237	=	30
A0	-	160	-	240	=	30
A1	-	161	-	241	=	18
A2	-	162	-	242	=	30
A3	-	163	-	243	=	36
A4	-	164	-	244	=	36
A5	-	165	-	245	=	36
A6	-	166	-	246	=	30
A7	-	167	-	247	=	30
A8	-	168	-	250	=	30
A9	-	169	-	251	=	30
AA	-	170	-	252	=	30
AB	-	171	-	253	=	30
AC	-	172	-	254	=	30
AD	-	173	-	255	=	30
AE	-	174	-	256	=	30
AF	-	175	-	257	=	30
B0	-	176	-	260	=	30
B1	-	177	-	261	=	30
B2	-	178	-	262	=	30

CHARACTER CODE				SETWIDTH	
HEX	DEC	OCT		#/120"	

B3	- 179	- 263	=	30	
B4	- 180	- 264	=	30	
B5	- 181	- 265	=	30	
B6	- 182	- 266	=	30	
B7	- 183	- 267	=	30	
B8	- 184	- 270	=	30	
B9	- 185	- 271	=	30	
BA	- 186	- 272	=	30	
BB	- 187	- 273	=	30	
BC	- 188	- 274	=	30	
BD	- 189	- 275	=	30	
BE	- 190	- 276	=	30	
BF	- 191	- 277	=	30	
C0	- 192	- 300	=	30	
C1	- 193	- 301	=	30	
C2	- 194	- 302	=	30	
C3	- 195	- 303	=	30	
C4	- 196	- 304	=	30	
C5	- 197	- 305	=	30	
C6	- 198	- 306	=	30	
C7	- 199	- 307	=	30	
C8	- 200	- 310	=	30	
C9	- 201	- 311	=	30	
CA	- 202	- 312	=	30	
CB	- 203	- 313	=	30	
CC	- 204	- 314	=	30	
CD	- 205	- 315	=	30	
CE	- 206	- 316	=	30	
CF	- 207	- 317	=	30	
D0	- 208	- 320	=	30	
D1	- 209	- 321	=	30	
D2	- 210	- 322	=	30	
D3	- 211	- 323	=	30	
D4	- 212	- 324	=	30	
D5	- 213	- 325	=	30	
D6	- 214	- 326	=	30	
D7	- 215	- 327	=	30	
D8	- 216	- 330	=	30	
D9	- 217	- 331	=	30	
DA	- 218	- 332	=	30	
DB	- 219	- 333	=	30	
DC	- 220	- 334	=	30	
DD	- 221	- 335	=	30	
DE	- 222	- 336	=	30	
DF	- 223	- 337	=	30	
E0	- 224	- 340	=	30	
E1	- 225	- 341	=	30	
E2	- 226	- 342	=	30	
E3	- 227	- 343	=	30	

CHARACTER CODE				SETWIDTH	
HEX		DEC	OCT		#/120"

E4	-	228	-	344	= 30
E5	-	229	-	345	= 30
E6	-	230	-	346	= 30
E7	-	231	-	347	= 30
E8	-	232	-	350	= 30
E9	-	233	-	351	= 30
EA	-	234	-	352	= 30
EB	-	235	-	353	= 30
EC	-	236	-	354	= 30
ED	-	237	-	355	= 30
EE	-	238	-	356	= 30
EF	-	239	-	357	= 30
F0	-	240	-	360	= 30
F1	-	241	-	361	= 30
F2	-	242	-	362	= 30
F3	-	243	-	363	= 30
F4	-	244	-	364	= 30
F5	-	245	-	365	= 30
F6	-	246	-	366	= 30
F7	-	247	-	367	= 30
F8	-	248	-	370	= 30
F9	-	249	-	371	= 30
FA	-	250	-	372	= 30
FB	-	251	-	373	= 30
FC	-	252	-	374	= 30
FD	-	253	-	375	= 30
FE	-	254	-	376	= 30
FF	-	255	-	377	= 30

ISO 390 EPSON Normal (#/360)
Compressed (#/(360*2))

Position		1	2	3	4	6	7	8	9	10	11	12	13	14	15
-----		---	---	---	---	---	---	---	---	---	---	---	---	---	---
Decimal Code		35	36	38	64	91	92	93	94	95	96	123	124	125	126
-----		---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hexadec. ESC! n		---	---	---	---	---	---	---	---	---	---	---	---	---	---
AMERICAN	00	30	30	36	36	24	30	24	30	30	18	24	18	24	30
FRENCH	01	30	30	36	30	24	30	30	30	30	18	24	36	30	30
GERMAN	02	30	30	36	30	36	36	42	30	30	18	30	30	36	36
BRITISH	03	30	30	36	36	24	30	24	30	30	18	24	18	24	30
DANISH I	04	30	30	36	36	42	36	36	30	30	18	42	30	30	30
SWEDISH I	05	30	30	36	36	36	36	36	42	30	30	30	30	30	36
ITALIAN	06	30	30	36	36	24	30	30	30	30	36	30	30	30	18
SPANISH I	07	42	30	36	36	30	36	30	30	30	18	30	36	24	30
JAPANESE	08	30	30	36	36	24	36	24	30	30	18	24	18	24	30
NORWEGIAN	09	30	30	36	36	42	36	36	42	30	30	42	30	30	36
DANISH II	0A	30	30	36	36	42	36	36	42	30	30	42	30	30	36
SPANISH II	0B	30	30	36	30	30	36	30	30	30	18	18	36	30	36
LATIN AMERIC	0C	30	30	36	30	30	36	30	30	30	36	18	36	30	36
FRENCH CAN	0D	36	30	30	30	30	30	30	18	18	30	30	36	30	36
DUTCH	0E	30	30	36	36	24	42	24	30	30	18	24	36	24	30
SWEDISH II	0F	30	30	36	36	36	36	36	42	30	30	30	30	30	36
SWEDISH III	10	30	30	36	36	36	36	36	42	30	30	30	30	30	36
SWEDISH IV	11	30	30	36	36	36	36	36	30	30	30	30	30	30	36
TURKISH	12	30	30	36	36	18	30	36	36	30	30	24	36	42	36
SWISS I	13	30	30	36	30	30	30	30	30	30	18	30	30	36	30
SWISS II	14	30	30	36	30	30	30	30	30	30	18	30	30	36	30
-----		---	---	---	---	---	---	---	---	---	---	---	---	---	---

Value of n can also be between 30 - 39 hex equal to 00 - 09 hex !

I. Proportional characters: Width Table Firmware:

Super-/Subscript Normal/Kursiv #/360 inch
 Super-/Subscript *) Compressed #/(360*2) inch

OKI ML390/1

CHARACTER CODE				SETWIDTH		
HEX		DEC		OCT		#/120 "

00	-	000	-	000	=	--
01	-	001	-	001	=	--
02	-	002	-	002	=	--
03	-	003	-	003	=	--
04	-	004	-	004	=	--
05	-	005	-	005	=	--
06	-	006	-	006	=	--
07	-	007	-	007	=	--
08	-	008	-	010	=	--
09	-	009	-	011	=	--
0A	-	010	-	012	=	--
0B	-	011	-	013	=	--
0C	-	012	-	014	=	--
0D	-	013	-	015	=	--
0E	-	014	-	016	=	--
0F	-	015	-	017	=	--
10	-	016	-	020	=	--
11	-	017	-	021	=	--
12	-	018	-	022	=	--
13	-	019	-	023	=	--
14	-	020	-	024	=	--
15	-	021	-	025	=	20
16	-	022	-	026	=	--
17	-	023	-	027	=	--
18	-	024	-	030	=	--
19	-	025	-	031	=	--
1A	-	026	-	032	=	--
1B	-	027	-	033	=	--
1C	-	028	-	034	=	--
1D	-	029	-	035	=	--
1E	-	030	-	036	=	--
1F	-	031	-	037	=	--
20	-	032	-	040	=	20
21	-	033	-	041	=	12
22	-	034	-	042	=	20
23	-	035	-	043	=	20
24	-	036	-	044	=	20
25	-	037	-	045	=	24
26	-	038	-	046	=	24
27	-	039	-	047	=	12
28	-	040	-	050	=	16
29	-	041	-	051	=	16

CHARACTER CODE				SETWIDTH	
HEX	DEC	OCT		#/120"	

2A	- 042	- 052	=	20	
2B	- 043	- 053	=	20	
2C	- 044	- 054	=	12	
2D	- 045	- 055	=	20	
2E	- 046	- 056	=	12	
2F	- 047	- 057	=	20	
30	- 048	- 060	=	20	
31	- 049	- 061	=	20	
32	- 050	- 062	=	20	
33	- 051	- 063	=	20	
34	- 052	- 064	=	20	
35	- 053	- 065	=	20	
36	- 054	- 066	=	20	
37	- 055	- 067	=	20	
38	- 056	- 070	=	20	
39	- 057	- 071	=	20	
3A	- 058	- 072	=	12	
3B	- 059	- 073	=	12	
3C	- 060	- 074	=	20	
3D	- 061	- 075	=	20	
3E	- 062	- 076	=	20	
3F	- 063	- 077	=	20	
40	- 064	- 100	=	24	
41	- 065	- 101	=	24	
42	- 066	- 102	=	24	
43	- 067	- 103	=	24	
44	- 068	- 104	=	24	
45	- 069	- 105	=	24	
46	- 070	- 106	=	24	
47	- 071	- 107	=	24	
48	- 072	- 110	=	24	
49	- 073	- 111	=	16	
4A	- 074	- 112	=	20	
4B	- 075	- 113	=	24	
4C	- 076	- 114	=	24	
4D	- 077	- 115	=	28	
4E	- 078	- 116	=	24	
4F	- 079	- 117	=	24	
50	- 080	- 120	=	24	
51	- 081	- 121	=	24	
52	- 082	- 122	=	24	
53	- 083	- 123	=	24	
54	- 084	- 124	=	24	
55	- 085	- 125	=	28	
56	- 086	- 126	=	24	
57	- 087	- 127	=	28	
58	- 088	- 130	=	24	
59	- 089	- 131	=	24	
5A	- 090	- 132	=	20	

CHARACTER CODE				SETWIDTH	
HEX	DEC	OCT		#/120"	

5B	-	091	-	133	= 16
5C	-	092	-	134	= 20
5D	-	093	-	135	= 16
5E	-	094	-	136	= 20
5F	-	095	-	137	= 20
60	-	096	-	140	= 12
61	-	097	-	141	= 20
62	-	098	-	142	= 24
63	-	099	-	143	= 20
64	-	100	-	144	= 24
65	-	101	-	145	= 20
66	-	102	-	146	= 16
67	-	103	-	147	= 20
68	-	104	-	150	= 24
69	-	105	-	151	= 12
6A	-	106	-	152	= 16
6B	-	107	-	153	= 24
6C	-	108	-	154	= 12
6D	-	109	-	155	= 28
6E	-	110	-	156	= 24
6F	-	111	-	157	= 20
70	-	112	-	160	= 24
71	-	113	-	161	= 24
72	-	114	-	162	= 20
73	-	115	-	163	= 20
74	-	116	-	164	= 16
75	-	117	-	165	= 24
76	-	118	-	166	= 24
77	-	119	-	167	= 28
78	-	120	-	170	= 20
79	-	121	-	171	= 24
7A	-	122	-	172	= 20
7B	-	123	-	173	= 16
7C	-	124	-	174	= 12
7D	-	125	-	175	= 16
7E	-	126	-	176	= 20
7F	-	127	-	177	= 00
80	-	128	-	200	= 24
81	-	129	-	201	= 24
82	-	130	-	202	= 20
83	-	131	-	203	= 20
84	-	132	-	204	= 20
85	-	133	-	205	= 20
86	-	134	-	206	= 20
87	-	135	-	207	= 20

CHARACTER CODE			SETWIDTH	CHARACTER	
HEX	DEC	OCT	*) #/360"		

88	-	136	-	210	= 20
89	-	137	-	211	= 20
8A	-	138	-	212	= 20
8B	-	139	-	213	= 12
8C	-	140	-	214	= 12
8D	-	141	-	215	= 12
8E	-	142	-	216	= 24
8F	-	143	-	217	= 24
90	-	144	-	220	= 24
91	-	145	-	221	= 28
92	-	146	-	222	= 28
93	-	147	-	223	= 20
94	-	148	-	224	= 20
95	-	149	-	225	= 20
96	-	150	-	226	= 24
97	-	151	-	227	= 24
98	-	152	-	230	= 24
99	-	153	-	231	= 24
9A	-	154	-	232	= 28
9B	-	155	-	233	= 20
9C	-	156	-	234	= 20
9D	-	157	-	235	= 24
9E	-	158	-	236	= 28
9F	-	159	-	237	= 20
A0	-	160	-	240	= 20
A1	-	161	-	241	= 12
A2	-	162	-	242	= 20
A3	-	163	-	243	= 24
A4	-	164	-	244	= 24
A5	-	165	-	245	= 24
A6	-	166	-	246	= 20
A7	-	167	-	247	= 20
A8	-	168	-	250	= 20
A9	-	169	-	251	= 20
AA	-	170	-	252	= 20
AB	-	171	-	253	= 20
AC	-	172	-	254	= 20
AD	-	173	-	255	= 12
AE	-	174	-	256	= 20
AF	-	175	-	257	= 20
B0	-	176	-	260	= 30
B1	-	177	-	261	= 30
B2	-	178	-	262	= 30
B3	-	179	-	263	= 30
B4	-	180	-	264	= 30
B5	-	181	-	265	= 30
B6	-	182	-	266	= 30
B7	-	183	-	267	= 30
B8	-	184	-	270	= 30

CHARACTER CODE			SETWIDTH	CHARACTER	
HEX	DEC	OCT	*) #/360"		

B9	-	185	-	271	= 30
BA	-	186	-	272	= 30
BB	-	187	-	273	= 30
BC	-	188	-	274	= 30
BD	-	189	-	275	= 30
BE	-	190	-	276	= 30
BF	-	191	-	277	= 30
C0	-	192	-	300	= 30
C1	-	193	-	301	= 30
C2	-	194	-	302	= 30
C3	-	195	-	303	= 30
C4	-	196	-	304	= 30
C5	-	197	-	305	= 30
C6	-	198	-	306	= 30
C7	-	199	-	307	= 30
C8	-	200	-	310	= 30
C9	-	201	-	311	= 30
CA	-	202	-	312	= 30
CB	-	203	-	313	= 30
CC	-	204	-	314	= 30
CD	-	205	-	315	= 30
CE	-	206	-	316	= 30
CF	-	207	-	317	= 30
D0	-	208	-	320	= 30
D1	-	209	-	321	= 30
D2	-	210	-	322	= 30
D3	-	211	-	323	= 30
D4	-	212	-	324	= 30
D5	-	213	-	325	= 30
D6	-	214	-	326	= 30
D7	-	215	-	327	= 30
D8	-	216	-	330	= 30
D9	-	217	-	331	= 30
DA	-	218	-	332	= 30
DB	-	219	-	333	= 30
DC	-	220	-	334	= 30
DD	-	221	-	335	= 30
DE	-	222	-	336	= 30
DF	-	223	-	337	= 30
E0	-	224	-	340	= 20
E1	-	225	-	341	= 20
E2	-	226	-	342	= 20
E3	-	227	-	343	= 20
E4	-	228	-	344	= 20
E5	-	229	-	345	= 20
E6	-	230	-	346	= 20
E7	-	231	-	347	= 20
E8	-	232	-	350	= 20
E9	-	233	-	351	= 20

<i>CHARACTER CODE</i>		<i>SETWIDTH</i>	<i>CHARACTER</i>
<i>HEX</i>	<i>DEC</i>	<i>OCT</i>	<i>*) #/360"</i>
	<i>EA</i>	- 234	- 352 = 20
	<i>EB</i>	- 235	- 353 = 20
	<i>EC</i>	- 236	- 354 = 20
	<i>ED</i>	- 237	- 355 = 20
	<i>EE</i>	- 238	- 356 = 20
	<i>EF</i>	- 239	- 357 = 20
	<i>F0</i>	- 240	- 360 = 30
	<i>F1</i>	- 241	- 361 = 30
	<i>F2</i>	- 242	- 362 = 30
	<i>F3</i>	- 243	- 363 = 30
	<i>F4</i>	- 244	- 364 = 30
	<i>F5</i>	- 245	- 365 = 30
	<i>F6</i>	- 246	- 366 = 30
	<i>F7</i>	- 247	- 367 = 30
	<i>F8</i>	- 248	- 370 = 30
	<i>F9</i>	- 249	- 371 = 30
	<i>FA</i>	- 250	- 372 = 30
	<i>FB</i>	- 251	- 373 = 30
	<i>FC</i>	- 252	- 374 = 30
	<i>FD</i>	- 253	- 375 = 30
	<i>FE</i>	- 254	- 376 = 30
	<i>FF</i>	- 255	- 377 = 20

ISO 390 EPSON sub/superscript (#/360)
sub/superscript Compressed (#(360*2))

Position		1	2	3	4	6	7	8	9	10	11	12	13	14	15
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Dec. Code		35	36	38	64	91	92	93	94	95	96	123	124	125	126
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hexadec. ESC! n															
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
AMERICAN	00	20	20	24	24	16	20	16	20	20	12	16	12	16	20
FRENCH	01	20	20	24	20	16	20	20	20	20	12	20	24	20	20
GERMAN	02	20	20	24	20	24	24	28	20	20	12	20	20	24	24
BRITISH	03	20	20	24	24	16	20	16	20	20	12	16	12	16	20
DANISH I	04	20	20	24	24	28	24	24	20	20	12	28	20	20	20
SWEDISH I	05	20	20	24	24	24	24	24	28	20	20	20	20	20	24
ITALIAN	06	20	20	24	24	16	20	20	20	20	24	20	20	20	12
SPANISH I	07	28	20	24	24	12	24	20	20	20	12	20	24	16	20
JAPANESE	08	20	20	24	24	16	24	16	20	20	12	16	12	16	20
NORWEGIAN	09	20	20	24	24	28	24	24	28	20	20	28	20	20	24
DANISH II	0A	20	20	24	24	28	24	24	28	20	20	28	20	20	24
SPANISH II	0B	20	20	24	20	12	24	20	20	20	12	12	24	20	24
LATIN AMERIC	0C	20	20	24	20	12	24	20	20	20	24	12	24	20	24
FRENCH CAN	0D	24	20	20	20	20	20	20	12	12	20	20	24	20	24
DUTCH	0F	20	20	24	24	16	28	16	20	20	12	16	24	16	20
SWEDISH II	10	20	20	24	24	24	24	24	28	20	20	20	20	20	24
SWEDISH III	11	20	20	24	24	24	24	24	28	20	20	20	20	20	24
SWEDISH IV	12	20	20	24	24	24	24	24	20	20	20	20	20	20	24
TURKISH	13	20	20	24	24	12	20	24	24	20	20	16	24	28	24
SWISS I	14	20	20	24	20	20	20	20	20	20	12	20	20	24	20
SWISS II	15	20	20	24	20	20	20	20	20	20	12	20	20	24	20
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Value of can also be between 30 - 39 hex equal to 00 - 09 hex!

```
*****
*
*   Parallel Centronics IF   Seite: 33
*
*****
*
*   RS 232C Interface        Seite: 34-36
*   (incl. Kabelvorschlag)
*****
*
*   RS 422A Interface        Seite: 37-39
*
*****
*
*   Current Loop /RS232 IF   Seite: 40-44
*   (Co-Resident)
*****
```

Centronics-Parallel Interface

36-poliges Interface

<u>Strobe</u>	--> o 1	19 o ---	GND/0V
D0	--> o 2	20 o ---	GND/0V
D1	--> o 3	21 o ---	GND/0V
D2	--> o 4	22 o ---	GND/0V
D3	--> o 5	23 o ---	GND/0V
D4	--> o 6	24 o ---	GND/0V
D5	--> o 7	25 o ---	GND/0V
D6	--> o 8	26 o ---	GND/0V
D7	--> o 9	27 o ---	GND/0V
<u>ACK</u>	<-- o 10	28 o ---	GND/0V
Busy	<-- o 11	29 o ---	GND/0V
Paper End	<-- o 12	30 o ---	GND/0V
Select	<-- o 13	31 o <--	<u>Input Prime ***</u>)
Auto Feed *)	--> o 14	32 o -->	<u>Fault</u>
	o	o	
Sign.GND/0V	--- o 16	o	
Shield Ground	--- o 17	o	
+5V **	<-- o 18	36 o	

--- o --- no direction
 <-- o --> from Printer
 --> o <-- to Printer

Jumper Setting for Centronics Parallel Internal Test

*)	SP5:	A	B	***)	SP4:	A	B
	Auto Feed enable	o	o		I-Prime enable	o	o-o
	Auto Feed disable	o	o		I-Prime disable	o-o	o
**) SP1:							
	+5V available	o-o					
	+5V not available	o	o (no Jumper installed)				

RS-232C Serial Interface Board**Menue - Factory Setting**

Parity	ODD, EVEN, NONE
Data Bit Length 7 or 8	7, 8
Protocol	Ready/Busy , XON/XOFF
Diagnostic Test	NO , YES
Busy Line	SSD- , SSD+, DTR, RTS
Baud Rate	300 bps, 600 bps, 1200 bps, 2400 bps, 4800 bps, 9600 bps, 9600 bps , 19600 bps
DSR Signal	Valid , Invalid
DTR Signal	Ready, -ON Power up -ON Select
Busy Time	200 Milliseconds 1 Second

IBM Personal Computer XT**OKI -RS 232C**

25 pins SUB-D
(female) connector

25 pins SUB-D
male connector

Name	Pin-No.		Pin-No.	Name
DTE				DTE
Prot.GND	01	=====	01	Prot.GND
TxD	02	>-----: :-----<	02	TxD
		:--->:>---:		
RxD	03	<-----: :----->	03	RxD
RTS	04	>---: :---<	04	RTS
CTS	05	<---: :--->	05	CTS
DSR	06	<---: :--->	06	DSR
DCD	08	<---:-----: :-----:--->	08	DCD
		:--->:>---:		
DTR	20	>-----: :-----<	20	DTR
Sig.GND	07	-----	07	Sig.GND

IBM Personal Computer AT**OKI -RS 232C**

09 pins SUB-D
(female) connector

25 pins SUB-D
male connector

Name	Pin-No.		Pin-No.	Name
special				DTE
Prot.GND		=====	01	Prot.GND
RxD	02	<-----<	02	TxD
TxD	03	>----->	03	RxD
CTS	08	<---: :---<	04	RTS
RTS	07	>---: :--->	05	CTS
DSR	06	<---: :--->	06	DSR
DCD	01	<---:-----: :-----:--->	08	DCD
		:--->:~>---:		
DTR	04	>-----: :-----<	20	DTR
Sig.GND	05	-----	07	Sig.GND

Menue-Setting RS 232 Interface

- 1.) Diagnostic Test = No
- 2.) Data Set Ready (DTR) = Invalid
- 3.) if Ready/Busy protokoll then 'Busy Line' = DTR

RS-422A Serial Interface Board**Menue - Factory Setting**

Parity	ODD, EVEN, NONE
Data Bit Length 7 or 8	7, 8
Protocol	Ready/Busy , XON/XOFF
Diagnostic Test	NO , YES
Busy Line	SSD- , SSD+, DTR, RTS
Baud Rate	300 bps, 600 bps, 1200 bps, 2400 bps, 4800 bps, 9600 bps, 9600 bps , 19600 bps
DSR Signal	Valid , Invalid
DTR Signal	Ready, -ON Power up -ON Select
Busy Time	200 Milliseconds 1 Second

RS-422A Serial Interface Board

37-poliges Interface

[illegible]

RS-422A Serial Interface Board

Testplug RS422A

TxD	4	-->	6	RxD
TxD	22	-->	24	RxD
RTS	7	-->	9	CTS
RTS	25	-->	27	CTS
(DCD)	13	<--	3	SSD
(DCD)	31	<--	21	SSD
DTR	12	-->	11	DSR
DTR	30	-->	29	DSR

ML 320/1 AND 390/1 CORESIDENTES SERIAL INTERFACE BOARD (OPTION)
Used as RS-232C Interface only.

I. RS 232 Interface:

SP2:	A	B
	o-o	o

For interface firmware 64-1578 Rev.02 of Q2 and higher only:

SP1:	A	B
Protocol definid by Printer Menu Setting	o-o	o
Ready/Busy or XON/XOFF		

SP1:	A	B
Protocol Centr. Block Duplex	o	o-o
(STX/ETX/ACK/NAK Handshake)		

Remark:

'Jumper Settings' of SP3/SP4/SP5 are not relevant for RS232 mode.
In RS232-C mode interface firmware 64-1578 Rev.01 of Q02 does
not support 'Centronics Block Duplex Protocol'. Therefore,
jumper SP1 has no meaning in case SP2 determines RS232-C mode.
(Jumper SP2 set to position A).

RS 232 Interface: 25-poliges Interface

PROT.GND	---	o	1			
				14	o	
TxD	<--	o	2		o	
RxD	-->	o	3		o	
RTS	<--	o	4		o	
		o				
				18	o	-->
DSR	-->	o	6		o	-->
GND	---	o	7		o	
				20	o	--> DTR
(DCD)	-->	o	8		o	
					o	
	-->	o	9		o	
					o	
	-->	o	10		o	
SSD	<--	o	11		o	
		o			o	
				25	o	
		o	13			
	---	o	---			no direction
	<--	o	-->			from Printer
	-->	o	<--			to Printer

ML 320/1 AND 390/1 CORESIDENTES SERIAL INTERFACE BOARD (OPTION)
Used as Current Loop / 20mA Interface only.

II. Current Loop Serial Interface:

SP2: **A B**
 o o-o

SP1: **A B**
 Protocol definid by Printer Menu Setting o-o o
 Ready/Busy or XON/XOFF

SP1: **A B**
 Protocol Centr. Block Duplex o o-o
 (STX/ETX/ACK/NAK Handshake (block size max. 8KB))

Remark:

- For 'Two-Wire Connections' only 'STX/ETX/ACK/NAK Handshake' possible!
- For 'Three- and Four-Wire Connections' all handshakes are supported.

Two-Wire Connections:

SP3: **A B C**
 o o-o o

SP5: **A B**
 o-o o

a) Current Source: System Side/Host

Used Pins: D- = pin 10 and B+ = pin 18 must be jumpered.
 Used Pins: D+ = pin 9 and B- = pin 19 only.

SP4: **A B**
 o-o o

b) Current Source: Printer Side

Used Pins: D- = pin 10 and B+ = pin 18 must be jumpered.
 Used Pins: B- = pin 19 and SG = pin 7 only.

SP4: **A B**
 o o-o

Three-Wire Connection:

Current Source: Printer Side only

Used Pins: D- = pin 10, B- = pin 19, and SG = pin 7 only.

SP3: **A B C**
 o o o-o

SP4: **A B**
 o o-o

SP5: **A B**
 o o-o

Four-Wire Connection:

Current Source: System Side, Host only

Used Pins: D+ = pin 9, D- = pin 10, B+ = pin 18,
 and D- = pin 19 only.

SP3: **A B C**
 o o o-o

SP4: **A B**
 o-o o

SP5: **A B**
 o-o o

Current Loop Serial Interface: 25-poliges Interface

PROT.GND	---	o	1			
				14	o	
	<--	o	2			
					o	
	-->	o	3			
					o	
	<--	o	4			
					o	
		o				
	-->	o	6	18	o	--> Current Loop TxD/B+
				19	o	--> Current Loop TxD/B-
SIG.GND/0V	---	o	7	20	o	-->
	-->	o	8			
					o	
Current Loop RxD/D+	-->	o	9			
					o	
Current Loop RxD/D-	-->	o	10			
					o	
	<--	o	11			
					o	
		o				
				25	o	
		o	13			
	---	o	---			no direction
	<--	o	-->			from Printer
	-->	o	<--			to Printer

Testplug RS232C

TxD	2	-->	3	RxD
RTS	4	-->	5	CTS
(DCD)	8	<--	11	SSD
DTR	20	-->	6	DSR

Testplug for Current Loop lokal Test
(simulates a two-/three-wire connection)

Current Loop RxD/D-	10	<--	18	Current Loop TxD/B+
Signal GND/0	7	<--	19	Current Loop TxD/B-

Jumper Setting for Current Loop local Test

SP2:	A	B
	○	○-○
SP3:	A	B C
	○	○ ○-○
SP4:	A	B
	○	○-○
SP5:	A	B
	○-○	○

Remark:

- SP1 in connection of printer menu selection may be used in order to test all three different hand shake protocols.